

What is Claimed is:

1. A surveillance method, comprising the steps of:

deploying a battery-powered unit having a spectrum analyzer, a signal source recognition unit coupled to the spectrum analyzer and a transmitter for transmitting the results of the signal source recognition unit to a remote location; and,

receiving the transmittal signal at the remote location and providing an indication of the presence of a signal source such that the presence of an identifiable signal source can be made known.

2. The method of Claim 1, and further including in the deployed unit a direction finding system for ascertaining the direction of an incoming signal from the signal source and for transmitting the direction of the incoming signal to the remote location.

3. The method of Claim 1, and further including in the deployed unit a geophysical location detection system for determining the location of the deployed unit and for transmitting the determined location to the remote location, with transmissions from a number of deployed units permitting determination of the location of the signal source the signal of which is recognized by the signal source recognition unit.

4. The method of Claim 1, and further including in the deployed unit a direction finding system for ascertaining the direction of an incoming signal and a geophysical location detection system for ascertaining the location of the deployed unit, and,

coupling the outputs of the direction finding system and the geographical location detection system to the transmitter, whereby with reports from a number of deployed units the location of the source of the incoming signal can be ascertained by triangulation.

5. The method of Claim 1, wherein the spectrum analyzer includes a single dual chirp generator and both a first dispersive delay line and a second dispersive delay line, with the two different chirps from the dual chirp generator matched to the respective delay lines, whereby power consumption is limited through the use of a single chirp generator thus to maximize the longevity of the battery powered unit deployed.

6. A spectrum analyzer, comprising;

- a mixer adopted to receive an input signal;
- a dual frequency fast chirp, slow chirp generator coupled to said mixer;
- a fast dispersive delay line having an input coupled to the output of said mixer, the output thereof providing a number of coarse frequency bins;
- a gate coupled to the output of said fast dispersive delay line;
- a timing pulse applied to said gate to clock said gate at a rate to isolate one of said bins;

a band pass filter coupled to the output of said gate for filtering out fast chirp components at the output thereof; and,

a slow dispersive delay line coupled to the output of said band pass filter, said dual chirps matched respectively to said two dispersive delay lines, whereby the resolution of said spectrum analyzer is that associated with a double Fast Fourier Transform of said input signal.

7. The spectrum analyzer of Claim 6, wherein said fast delay line includes a SEW line.

8. The spectrum analyzer of Claim 6, wherein said slow delay line includes a SAW line.

9 A spectrum analyzer for analyzing an incoming signal, comprising;

a comprehensive receiver having a dual frequency chirp generator and serially connected fast and slow dispersive delay lines, said dual frequency chirp generator having chirps respectively coupled to and matched to said fast and slow delay lines, said delay lines being connected such that frequency bins at the output of said fast delay line have the spectral components therein more finely resolved by said slow delay line.

10. The spectrum analyzer of Claim 9, wherein said fast delay line is a SEW line.

11. The spectrum analyzer of Claim 9, wherein said slow delay line is a SAW line.
12. The spectrum analyzer of Claim 9, wherein said compressive receiver includes a gate interposed between said fast and slow delay lines for selecting a predetermined frequency bin from said fast delay line for refining the resolution thereof by said slow delay line.
13. The spectrum analyzer of Claim 9, wherein said spectrum analyzer is battery-operated, whereby the use of a single dual chirp generator reduces power drain on said battery over that associated with two chirp generators.
14. The spectrum analyzer of Claim 9, wherein the range thereof is between 2 and 2500 megahertz.
15. The spectrum analyzer of Claim 9, wherein the frequency bins associated with the output of said slow delay line are 30 kilohertz wide.